

What is claimed is:

1. A phased array for generating a directed radiation pattern comprising:
  - a plurality of first tunable elements connected in series between adjacent power divider ports;
  - a source connected to one input of the plurality of first tunable elements at a first power divider port;
  - an antenna connected to each of the power divider ports; and
  - a second tunable element connected in parallel with each antenna.
2. The phased array of claim 1, wherein phase differences between successive power divider ports are equal.
3. The phased array of claim 1, wherein the amplitude of the signal at each antenna is equal, and wherein a phase of a signal at each antenna successively changes by an equal amount.
4. The phased array of claim 1, wherein the source comprises an alternating power supply connected to the first power divider port through a quarter-wave transformer, and the power supply further comprises one of a current power supply and a voltage power supply.
5. The phased array of claim 1, wherein the first tunable elements are inductors, and each inductor further comprises an impedance inverter.
6. The phased array of claim 5, wherein the impedance inverter comprises two quarter-wave transformers connected in series and separated by a shunt varactor.
7. The phased array of claim 1, wherein each antenna is separated by a successive antenna by a half wavelength.

8. The phased array of claim 1, wherein each second tunable element is a capacitor, and each capacitor further comprises a varactor fabricated for one of continuous tuning and discrete tuning.

9. The phased array of claim 1, wherein each second tunable element is a capacitor, and each capacitor further comprises one of a solid-state varactor diode, a solid-state varactor transistor, a ferroelectric varactor, and a MEMS based varactor.

10. The phased array of claim 1, wherein each second tunable element is a capacitor, and each capacitor is one of a switching fixed capacitor and a switching transmission line.

11. The phased array of claim 1, wherein the combination of the first tunable element, the second tunable element, and the antenna defines a one dimension array.

12. The phased array of claim 11, wherein a plurality of one dimension arrays are connected with respect to one another to define a multi-dimension array.

13. The phased array of claim 11, wherein a first one dimension array is connected to a second one dimension array through corresponding power divider ports.

14. The phased array of claim 13, wherein an amplifier is connected between each corresponding power divider ports of the first and second one dimension arrays.

15. The phased array of claim 1, wherein the first tunable elements

are one of an inductor and a capacitor.

16. The phased array of claim 1, wherein the second tunable element is one of an inductor and a capacitor.

17. A phased array for generating a directed radiation pattern comprising:

a plurality of power divider ports;  
a first tunable element connected in series between each pair of adjacent power divider ports;  
an antenna connected to each of the power divider ports; and  
a second tunable element connected in parallel with each antenna.

18. The phased array of claim 17, wherein phase differences between successive power divider ports are equal.

19. The phased array of claim 17, wherein the amplitude of the signal at each antenna is equal, and wherein a phase of a signal at each antenna successively changes by an equal amount.

20. The phased array of claim 17, wherein a source connectible to at least one power divider port further comprises an alternating power supply connected to a first power divider port through a quarter-wave transformer.

21. The phased array of claim 17, wherein the first tunable element is an inductor, and each inductor further comprises an impedance inverter.

22. The phased array of claim 21, wherein the impedance inverter further comprises two quarter-wave transformers connected in series and separated by a shunt varactor.

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23. The phased array of claim 17, wherein each antenna is separated by a successive antenna by a half wavelength.

24. The phased array of claim 17, wherein each second tunable element is a capacitor, and each capacitor is a varactor fabricated for at least one of continuous tuning and discrete tuning.

25. The phased array of claim 17, wherein each second tunable element is a capacitor is one of a solid-state varactor diode, a solid-state varactor transistor, a ferroelectric varactor, and a MEMS based varactor.

26. The phased array of claim 17, wherein each second tunable element is a capacitor, and each capacitor is one of a switching fixed capacitor and a switching transmission line.

27. The phased array of claim 17, wherein the combination of the first tunable element, the second tunable element, and the antenna defines a one dimension array.

28. The phased array of claim 27, wherein a plurality of one dimension arrays are connected with respect to one another to define a multi-dimension array.

29. The phased array of claim 27, wherein a first one dimension array is connected to a second one dimension array through corresponding power divider ports.

30. The phased array of claim 29, wherein an amplifier is connected between each corresponding power divider ports of the first and second one dimension arrays.

31. The phased array of claim 17, wherein the first tunable element is one of an inductor and a capacitor.

32. The phased array of claim 17, wherein the second tunable element is one of an inductor and a capacitor.